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- (54) Title: COMPOSITE MATERIALS COMPRISING PPTA AND NANOTUBES

(57) **Abstract:** The invention pertains to a composite material comprising PPTA (poly-p-phenyleneterephthalamide) and nanotubes having an aspect ratio of at least 100 and a cross sectional diameter of 5 nm or less, the composite material containing up to 12 wt.% of nanotubes, obtainable by adding the nanotubes to sulfuric acid, decreasing the temperature to solidify the mixture, adding PPTA to the solid mixture, heating to above the solidifying point and mixing the mixture, and spinning, casting, or molding the mixture to the composite material. The process comprises the steps: a) adding nanotubes having an aspect ratio of at least 100 and a cross-sectional diameter of 5 nm or less to sulfuric acid at a temperature above the solidifying point of the sulfuric acid; b) decreasing the temperature to below the solidifying point of the sulfuric acid and mixing for a sufficient time to solidify the mixture; c) adding PPTA to the solid mixture; and d) heating to above the solidifying point and mixing the mixture.